

ABSTRACT

A method for forming porous silicon oxide film, comprising the following steps. A CVD chamber having inner walls and a wafer chuck/heater is provided. At least a portion of the CVD chamber inner walls is pre-coated with a layer of first PECVD silicon oxide film having a first thermal CVD oxide deposition rate thereupon. A semiconductor wafer is placed on the wafer chuck/heater within pre-coated CVD chamber. The semiconductor wafer including an upper second PECVD silicon oxide film having a second thermal CVD oxide deposition rate thereupon that is less than the first thermal CVD oxide deposition rate upon the first PECVD silicon oxide film coating the CVD chamber inner walls. A porous silicon oxide film is deposited upon the upper second PECVD silicon oxide film overlying the semiconductor wafer. The porous silicon oxide film being different from the first PECVD silicon oxide film coating the CVD chamber inner walls.